

*Abstract*

1 A power controller for applying power to an induction motor or similar AC  
2 load has a variable drive circuit for starting and switching a portion of the AC input  
3 line power. In one mode, the input line power is fed straight through to the load.  
4 In another mode, the AC waveform is reshaped to improve the power factor or to  
5 boost its RMS value, e.g., for brownout protection. In a further mode the output  
6 power can be provided at a different frequency from the input line power. Vector  
7 control increases efficiency through power optimization, with sensing of load  
8 requirements. Sensing of regeneration pulses at the commencement of a half cycle  
9 can be employed for direct sensing of motor speed or load.